

In the Claims:

Please amend the claims as follows:

1. (currently amended) ~~Method~~ A method for conversion of waveguide modes from a mode of type  $TM_{01}$  to mode of type  $TE_{11}$  for transmission of power within the microwave range, characterized in that wherein incoming power of mode type  $TM_{01}$  is divided between two or more waveguides with cross-sections essentially in the shape of circle sectors, in that wherein the divided power is phase-shifted by the waveguides in a subsequent phase-shift section by means of waveguides with cross-sections essentially in the shape of circle sectors being designed with different radii, after which the waveguides are changed into a common essentially circular waveguide that emits an outgoing power of mode type  $TE_{11}$ .
2. (currently amended) ~~Method~~ The method according to ~~Claim 1, characterized in that claim 1, wherein~~ the conversion of the waveguide mode from mode type  $TM_{01}$  to mode type  $TE_{11}$  is caused, in an intermediate stage comprising four separate waveguides, to assume a field configuration for the basic modes of the respective waveguides that constitutes one quarter of a so-called  $TE_{21}$  mode in a corresponding circular waveguide.
3. (currently amended) ~~Mode-converting~~ A mode converting arrangement for conversion of waveguide modes from a mode of type  $TM_{01}$  to mode of type  $TE_{11}$  for transmission of power within the microwave range, comprising an incoming waveguide for reception of power of the type  $TM_{01}$ , an outgoing waveguide for outputting power of the mode

type TE<sub>11</sub> and a waveguidemode-converting section arranged between the incoming and outgoing waveguides, characterized in that wherein the waveguide-mode-converting section comprises at least one input section for dividing the received power into two or more components and a phase-shift section at the output side of the input section with an allocated waveguide for each power component, with the waveguides being designed with cross-sections that are essentially in the shape of circle sectors with different radii emanating from a common centre center and such that the cross-sections in the shape of circle sectors together essentially cover 360 degrees.

4. (currently amended) Mode-converting The mode-converting arrangement according to Claim 3, characterized in that claim 3, whrein the phase-shift section is dimensioned to have a length in the transmission direction of at least  $\lambda_0/4$  and, for example, of the order of  $2\lambda_0$ , where  $\lambda_0$  denotes the free-space wavelength of the centre center frequency in the band that is transmitted by the arrangement.

5. (currently amended) Mode-converting The mode-converting arrangement according to anyone of Claims 3-4, characterized in that claim 3, wherein a mode-mixer section is included in connection with the outgoing waveguide, which mode-mixer section comprises a change from a plurality of waveguides with cross-sections in the shape of circle sectors to one waveguide with an essentially circular cross-section.

6. (currently amended) Mode-converting The mode-converting arrangement according to Claim 5, characterized in that claim 5, wherein the change in the mode-mixer section can be

designed to be abrupt.

7. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to ~~Claim 5, characterized in that claim 5, wherein~~ the change in the mode-mixer section is designed to be gradual, by the change having an extent in the transmission direction that corresponds to at least  $\lambda_0/4$ , where  $\lambda_0$  denotes the free-space wavelength for the ~~centre~~ center frequency in the band that is transmitted by the arrangement.

8. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to ~~anyone of Claims 5-7, characterized in that claim 5, wherein~~ the output of the mode-mixer section forms the outgoing waveguide of the arrangement.

9. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to ~~anyone of the preceding Claims 3-8, characterized in that claim 3, wherein~~ a balance section is included, connected to the output side of the phase-shift section and comprising waveguides with cross-sections that are essentially in the shape of circle sectors with the same radii, in order to balance the field configurations of the waves that leave the different waveguides of the phase-shift section.

10. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to ~~anyone of the preceding Claims 3-9, characterized in that claim 3, wherein~~ an intermediate section is arranged between the input section and the phase-shift section, which intermediate section comprises a plurality of waveguides with cross-sections in the shape of circle sectors and

essentially identical radii.

11. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to ~~anyone of the preceding Claims 3-10, characterized in that~~ claim 3, wherein the input section is designed to divide the received power into two components.

12. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to ~~anyone of the preceding Claims 3-11, characterized in that~~ claim 3, wherein the input section is designed to divide the received power into four components.

13. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to ~~anyone of the preceding Claims 3-12, characterized in that~~ claim 3, wherein the input section comprises thin ridges for dividing the received power, which ridges increase in size in the transmission direction from the periphery of the input section inwards towards the middle of the input section so that they meet at the output side of the input section.

14. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to claim 13, characterized in that wherein the ridges are designed to increase in size continuously in the direction.

15. (currently amended) ~~Mode-converting~~ The mode-converting arrangement according to claim 13, characterized in that wherein the ridges are designed to increase in size in steps in the direction.

16. (currently amended) ~~Antenna~~ An antenna arrangement comprising a mode-converting arrangement according to ~~anyone of Claims 3-15~~ claim 3.